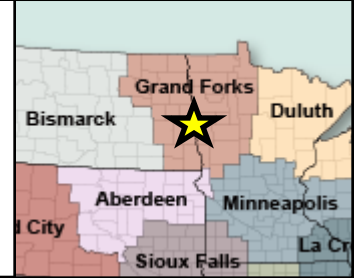


# National Weather Service Grand Forks



## Weather & Climate Review

March-April 2022



### March

	AveT	TDept	THigh	TLow	Pcpn	PDept	Snow	PWnd
DVL	23.1	-0.2	48	-10	M	M	M	M
NWS GF	24.0	-1.4	54	-9	0.25	-0.66	1.7	M
GFK	22.0	-2.4	52	-14	0.30	-0.61	1.0	46
RDR	24.1	-0.3	55	-10	M	M	M	45
<b>FAR</b>	<b>25.3</b>	<b>-1.9</b>	<b>56</b>	<b>-9</b>	<b>0.51</b>	<b>-0.74</b>	<b>5.5</b>	<b>49</b>
BDE	22.0	-1.7	54	-18	M	M	M	53
PKD	23.0	-3.3	52	-21	M	M	M	54
BJI	22.4	-1.6	53	-18	M	M	M	41
TVF	22.6	-1.8	54	-16	M	M	M	52
Y63	24.7	-2.2	52	-15	M	M	M	M
AGA	19.8	-5.9	52	-27	M	M	M	M

Table 1 March 2022 Temperature and Precipitation Statistics

In Table 1, (ND) **DVL** = Devils Lake, **NWS GF** = NWS Grand Forks, **GFK** = GF Airport, **RDR** = GF Air Force Base, **FAR** = Fargo, (MN) **BDE** = Baudette, **PKD** = Park Rapids, **BJI** = Bemidji, **TVF** = Thief River Falls, **Y63** = Elbow Lake, **AGA** = Agassiz MN NWR.

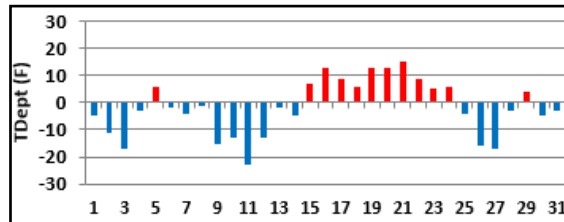


Figure 1  
March Daily  
Departure from  
Normal  
Temperatures at  
the NWS Grand  
Forks ND

Blue Bars = Colder than Normal Days & Red Bars = Warmer than Normal Days

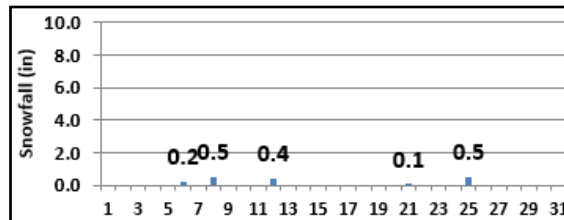


Figure 2  
March Daily  
Snowfall Totals  
NWS Grand Forks  
ND

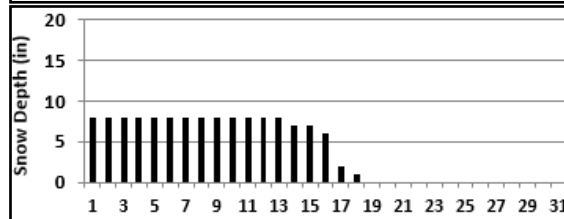


Figure 3  
March Daily  
Snow Depth  
NWS Grand Forks  
ND

Table 1 shows the March average temperature (AveT), departure from normal temperature (TDept), highest temperature (THigh), lowest temperature (TLow), precipitation (Pcpn), departure from normal precipitation (PDept), snowfall (Snow), and peak wind speed (PWnd in mph) for 11 climate stations. The March average temperature was below normal at all sites. Precipitation amounts were also below normal at the NWS Grand Forks and Fargo (the 2 primary winter measuring sites). Figure 1 plots the daily departure from normal temperatures in March 2022 at the NWS Grand Forks. The only notable warm stretch occurred from the 15th to the 24th. Figure 2 shows the March daily snowfall totals at NWS Grand Forks. Very little snow fell throughout the month. Figure 3 shows the daily snow depth at the NWS in Grand Forks (which is measured at 6 am CST/7 am CDT).

### Records

At Fargo-Moorhead, our longest running climate site, there were no daily or monthly records set in March 2022.

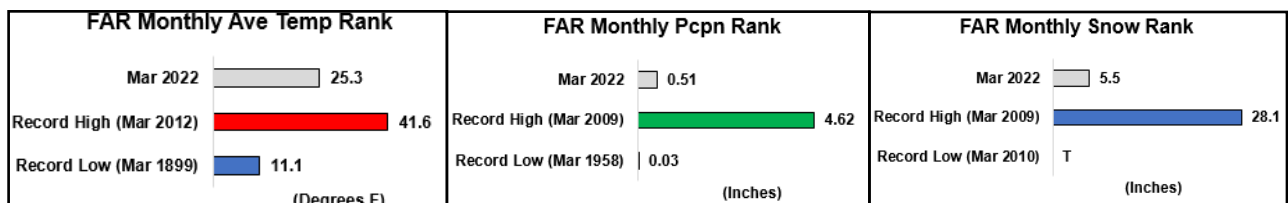


Figure 4 March 2022 Fargo Temperature and Precipitation Statistics Compared to Records

Figure 4 compares the March 2022 average temperature (AveT), precipitation (Pcpn), and snowfall (Snow) at Fargo to the established records.

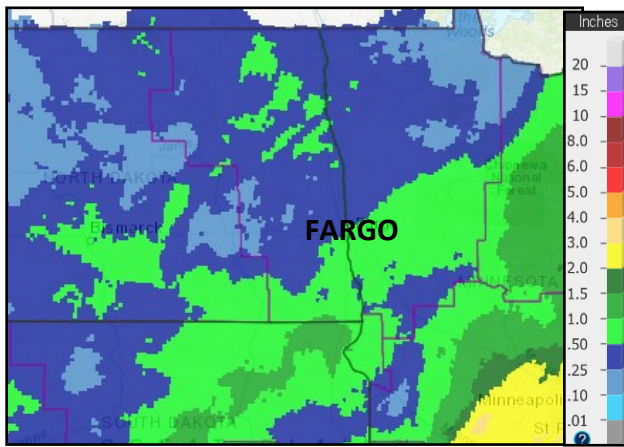


Figure 5 March Observed Precipitation

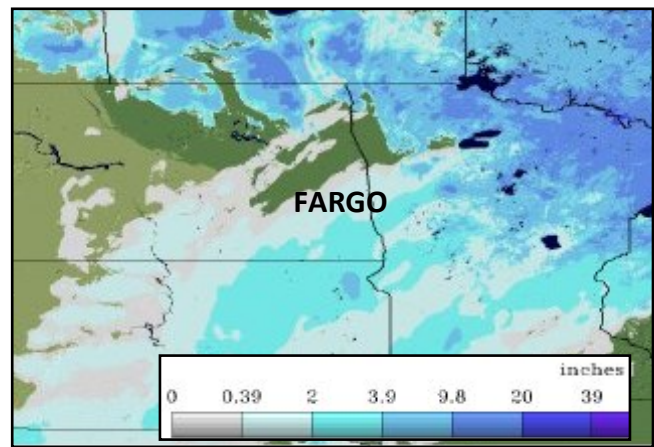
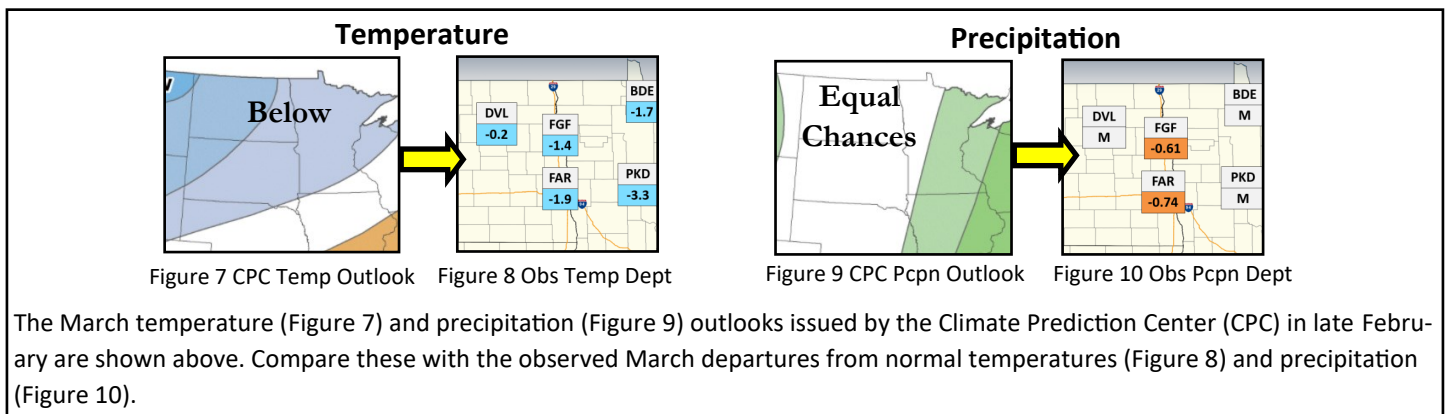


Figure 6 March 31st Snow Depth

Figure 5 gives a March precipitation estimate for all of eastern North Dakota and the northwest quarter of Minnesota. Most of the area received 0.10 to 1.0 inch of precipitation (blue to light green colors). Figure 6 shows the depth of snow on the ground across the Northern Plains on March 31st. A few areas across northeast North Dakota and northwest Minnesota still had over 9.8 inches of snow on the ground.



**Longer Term Trends** Looking at just the Fargo climate site (FAR), Figures 11 and 12 show how March 2022 fits into the previous 5 months. Figure 11 plots the monthly departures from normal temperatures at Fargo. The blue bars represent months that were colder than normal, while the red bars represent months that were warmer than normal. Figure 12 plots the monthly departures from normal precipitation at Fargo. The green bars represent months that were wetter than normal, while the brown bars represent months that were drier than normal.

The last four months have all been below normal for temperatures (Figure 11). The past three months have also featured below normal precipitation amounts (Figure 12).

Figure 13 tracks how much precipitation has fallen since January 1, 2022, and how it compares to normal and last year. Snowfall is also tracked for the snow season, which began on July 1, 2021.

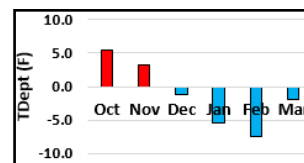


Figure 11 Monthly Departures from Normal Temps at Fargo, ND

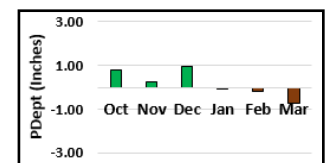


Figure 12 Monthly Departures from Normal Pcpn at Fargo, ND

	Observed Value	Normal	Departure from Normal	Last Year
Pcpn Since Jan 1	1.66	2.65	-0.99	0.94
Snow Since Jul 1	51.7	47.3	4.4	26.8

Figure 13 Yearly Precipitation & Seasonal Snowfall Trends at Fargo

## U. S. Drought Monitor

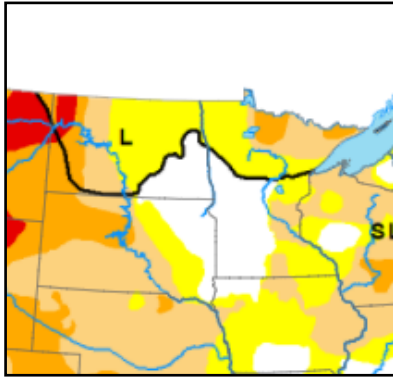


Figure 14 U. S. Drought Monitor, February 24

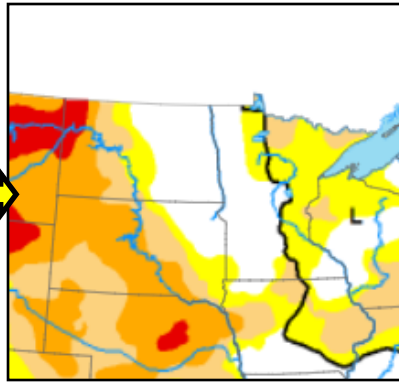


Figure 15 U. S. Drought Monitor, March 31

For eastern North Dakota and most of the northwest quarter of Minnesota, any lingering D0 drought areas ended by the March 31st U. S. Drought Monitor (Figures 14 & 15). The key for both figures is shown below.

### Intensity and Impacts

None	D3 (Extreme Drought)
D0 (Abnormally Dry)	D4 (Exceptional Drought)
D1 (Moderate Drought)	No Data
D2 (Severe Drought)	

## Winter Warnings

After a very active December 2021, January 2022, and February 2022, only one Winter Storm Warning was issued in March (on the 30th, Figure 16 below). The corresponding snow totals are shown in Figure 17. In addition, on March 10th, three Snow Squall Warnings were issued (see Figures 18-20 on the next page). Snow Squall Warnings are a relatively new product, and are issued much like summertime convective warnings (except they are for certain winter thresholds).

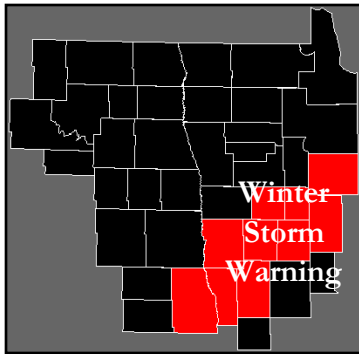


Figure 16 March 30 Warning Area

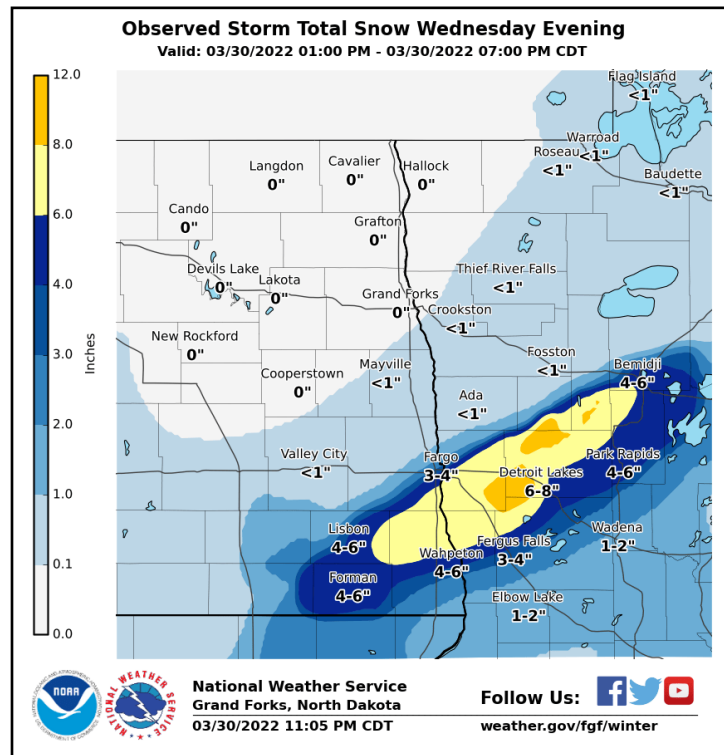


Figure 17 March 30 Snow Totals

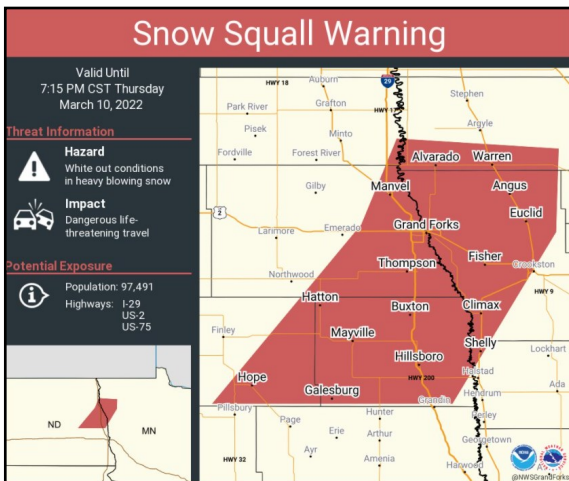


Figure 18 March 10 Warning 1

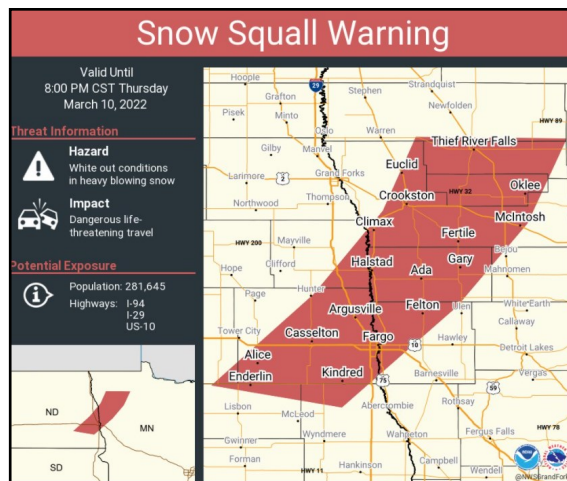


Figure 19 March 10 Warning 2

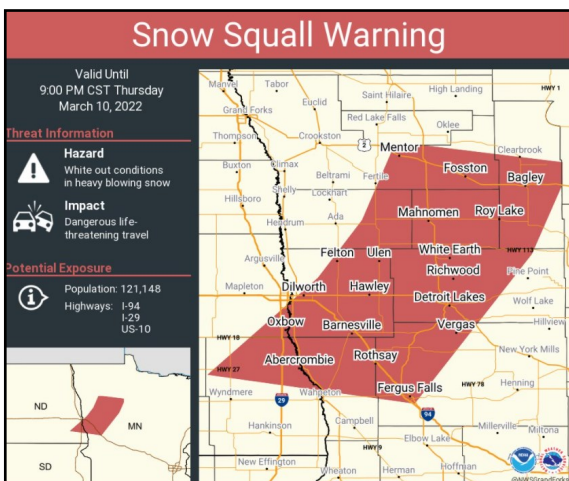
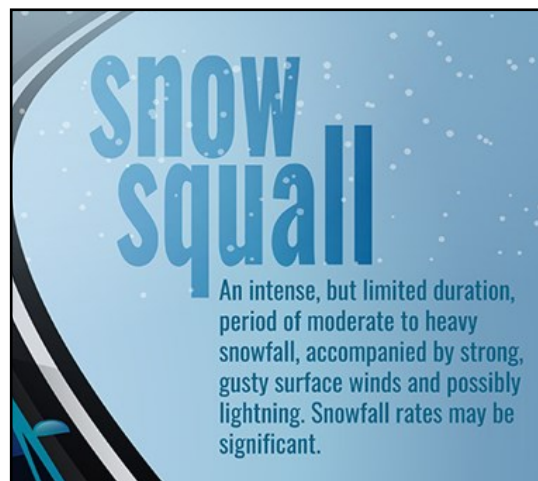


Figure 20 March 10 Warning 3



## April

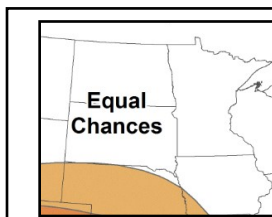


Figure 21 Temperature

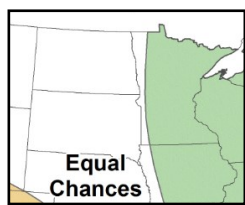


Figure 22 Precipitation

The latest Climate Prediction Center (CPC) temperature (Figure 21) and precipitation (Figure 22) outlooks for April 2022 are shown to the left. For eastern North Dakota and the northwest quarter of Minnesota, the CPC is forecasting equal chances for above, normal, or below normal temperatures and precipitation.

### Sunrise/Sunset

Fargo, ND

Apr 1 Sunrise: 7:07 am

Sunset: 7:55 pm

Apr 30 Sunrise: 6:14 am

Sunset: 8:35 pm



## Last Year & Normals

Per Table 2, in April 2021, the average temperature was slightly below normal at most sites. Precipitation amounts were a little below or a little above normal.

	AveT	TDept	THigh	TLow	Pcpn	PDept	Snow	PWnd
DVL	40.0	-3.3	72	14	M	M	M	M
NWS GF	41.7	-1.3	72	17	1.06	0.08	1.2	M
GFK	40.9	-1.1	74	15	0.89	-0.12	2.7	47
RDR	40.5	-1.5	75	12	0.98	-0.03	M	44
FAR	42.4	-1.8	73	17	1.64	0.28	2.0	45
BDE	39.8	-0.4	72	12	2.79	1.40	M	36
PKD	40.7	-0.5	75	11	2.23	0.38	M	40
BJI	39.2	0.1	75	6	1.25	-0.53	M	40
TVF	40.5	-1.3	70	16	0.82	-0.45	M	40
Y63	42.0	-2.0	76	15	M	M	M	M

Table 2 April 2021 Temperature and Precipitation Statistics

Figure 23 shows normal highs and lows on April 1st for selected cities across eastern North Dakota and northwest Minnesota. Figure 24 shows how normal highs and lows change by April 30th. As an example, at NWS Grand Forks on April 1st, the normal high is 43 and the normal low is 25. By April 30th, the normal high rises to 60 and the normal low rises to 37. Figure 25 shows the normal precipitation and snowfall amounts for a few selected sites. As an example, the normal precipitation at NWS Grand Forks in April is 1.19 inches and the normal snowfall is 2.7 inches.

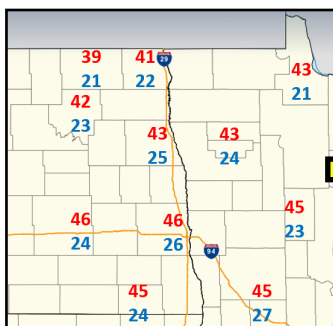


Figure 23 Normal Temps Apr 1

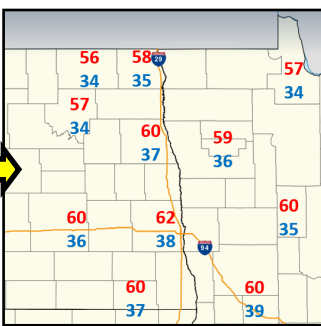


Figure 24 Normal Temps Apr 30

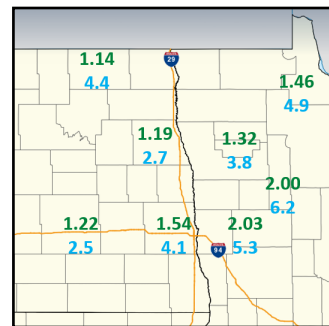


Figure 25 Normal Apr Pcpn/Snow

## Winter & Spring Warnings 2021

In 2021, Red Flag warnings were issued on April 1, 2, 3, and 22 (Figures 26 to 29) for critical fire weather conditions. Fire crews continued to battle the large "Oxcart Wildfire" in the Glacial Ridge National Wildlife Refuge (Polk County MN) in early April.

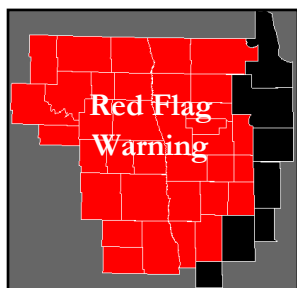


Figure 26 April 1 Red Flag

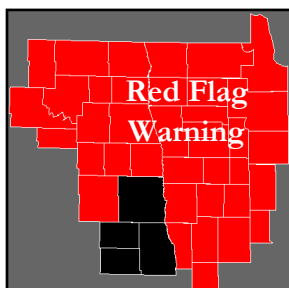


Figure 27 April 2 Red Flag

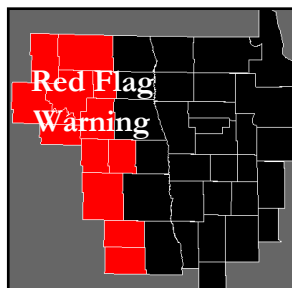


Figure 28 April 3 Red Flag

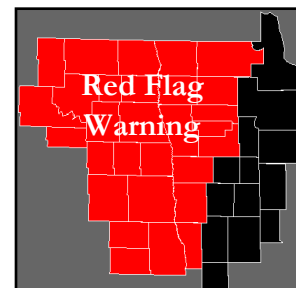


Figure 29 April 22 Red Flag